Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Tennessee

Exclusion Fencing Reduces Cattle's Impact and Restores Creek

Waterbody Improved

Agricultural practices and land development along Cherokee Creek contributed to increasing stream siltation, prompting the Tennessee Department of Environment and Conservation (TDEC) to add a 20.8-mile long segment of the creek to Tennessee's Clean Water Act section 303(d) list of impaired waters. Project partners implemented agricultural best management practices (BMPs) that reduced siltation and improved water quality. TDEC removed Cherokee Creek from the state's 303(d) list in 2008.

Problem

Cherokee Creek is in eastern Tennessee's rural Washington County. In 2000 TDEC performed a biological reconnaissance (biorecon) survey for the creek at mile 2.1 near Highway 81. Biorecon is one tool used to recognize stream impairment as judged by species richness measures, emphasizing the presence or absence of indicator organisms without regard to relative abundance. The biorecon survey documented poor scores, prompting TDEC to place a 20.8-mile segment of upper Cherokee Creek (from its headwaters to a point near Cherokee Road) on Tennessee's section 303(d) list in 2002. TDEC identified grazing practices and land development as the primary sources of sediment pollution that caused a loss of biological integrity. TDEC completed a total maximum daily load (TMDL) for siltation and habitat alteration for the Nolichucky River watershed, which includes Cherokee Creek. The U.S. Environmental Protection Agency approved the TMDL on February 26, 2008.

Project Highlights

Project partners installed agricultural BMPs along Cherokee Creek, including installing fencing to exclude cattle from the creek and building a pipeline to carry water to a new alternative watering tank (Figure 1) along the impaired segment of Cherokee Creek. Funding from Tennessee's Agricultural Resources Conservation Fund helped pay for the BMPs.

Figure 1. Example of an alternative watering tank.

Results

Implementing agricultural BMPs had reduced siltation and improved habitat, allowing macroinvertebrate populations to rise. In 2005 TDEC established Semi-Quantitative Single Habitat Assessment (SQSH) stations at mile 1.0 (Taylor Bridge Road) and at mile 2.5 (Charlie Parker Road). Similar to the biorecon, the SQSH assessment is a tool used to recognize stream impairment as judged by species richness measures, emphasizing the presence or absence of indicator organisms without regard to relative abundance. The principal metrics used are the total macroinvertebrate families (or genera) and the number of families of mayflies, stoneflies and caddisflies (EPT). At mile 1.0, the SQSH documented 9 EPT genera and 31 total genera. The SQSH scored 38 out of 42 on the Tennessee Macroinvertebrate Index. At mile 2.5, the SQSH documented 9 EPT genera and 23 total genera for a score of 36 out of 42. On the basis of the SQHS data, TDEC removed the 20.8-mile segment of Cherokee Creek from Tennessee's 2008 Clean Water Act section 303(d) list for siltation (Figure 2).

Partners and Funding

Staff from Washington County Soil Conservation District worked closely with landowners to identify and implement BMPs. This project received cost-share funds from section 319 grant pool projects. From 2003 to 2008, the Tennessee Agricultural Resources Conservation Fund provided $1,980 with an additional match of $661 from local landowners.

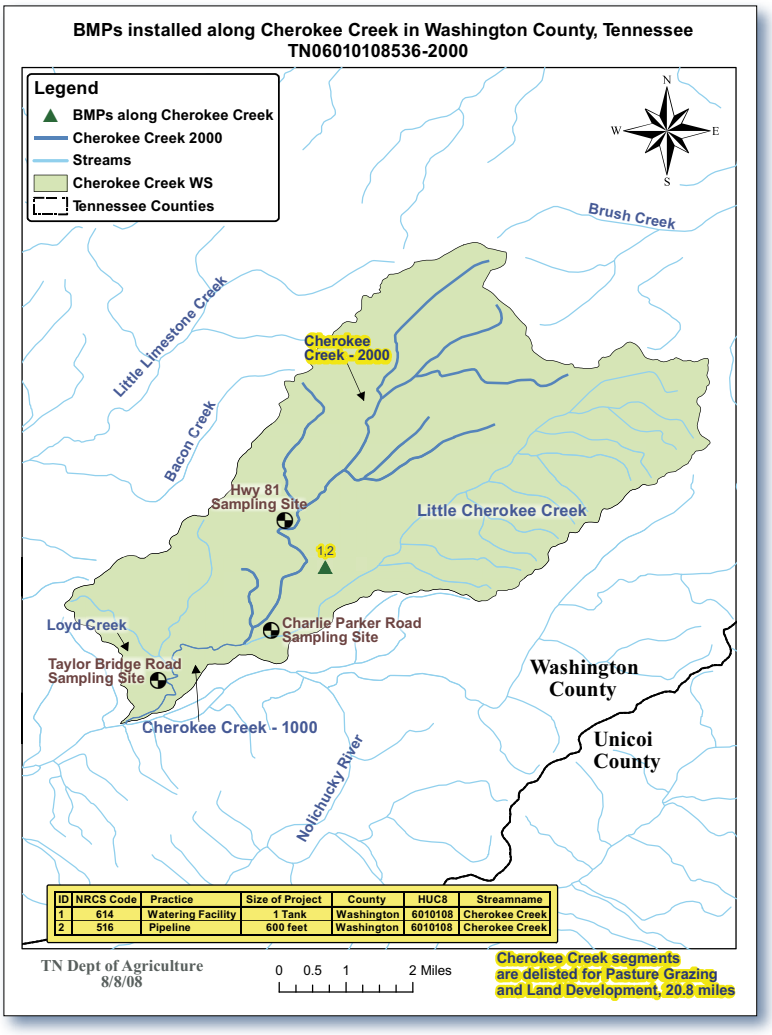

Figure 2. Map showing the previously impaired portion of Cherokee Creek and the locations of BMPs installed.

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